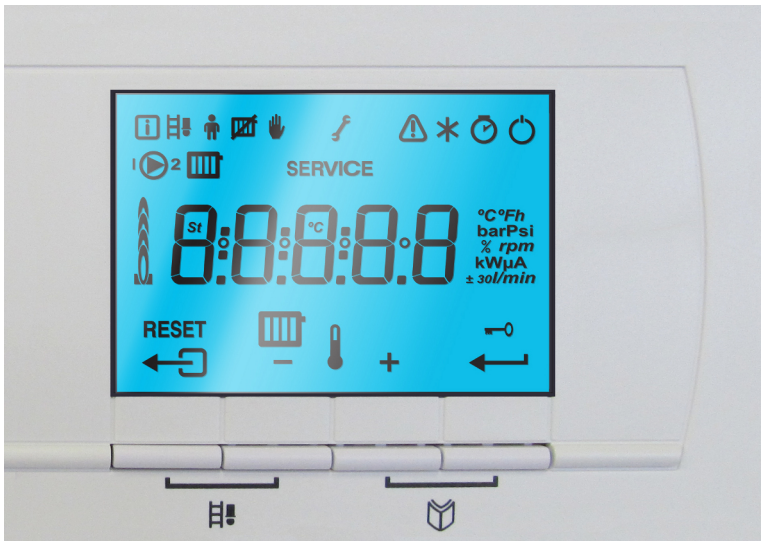
Great Britain

EN

Control panel

HMI Gas 310/610 ECO PRO



Installation, User and Service Manual

125482-04

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1 Introduction

1.1 Symbols used

In these instructions, various danger levels are employed to draw the user's attention to particular information. In so doing, we wish to safeguard the user's safety, obviate hazards and guarantee correct operation of the appliance.

DANGER

Risk of a dangerous situation causing serious physical injury.

WARNING

Risk of a dangerous situation causing slight physical injury.

CAUTION

Risk of material damage.

Signals important information.

Signals a referral to other instructions or other pages in the instructions.

1.2 Abbreviations

- **PCU**: Primary Control Unit - PCB for managing burner operation
- **PSU**: Parameter Storage Unit - Parameter storage for PCBs PCU and SU
- **SCU**: Secondary Control Unit - Extended control PCB
- **SU**: Safety Unit - Safety PCB
- **Central heating**: Central heating

1.3 Liabilities

1.3.1. Manufacturer's liability

Our products are manufactured in compliance with the requirements of the various applicable European Directives. They are therefore delivered with CE marking and all relevant documentation.

In the interest of customers, we are continuously endeavouring to make improvements in product quality. All the specifications stated in this document are therefore subject to change without notice.

Our liability as the manufacturer may not be invoked in the following cases:

- Failure to abide by the instructions on using the appliance.
- Faulty or insufficient maintenance of the appliance.
- Failure to abide by the instructions on installing the appliance.

1.3.2. Installer's liability

The installer is responsible for the installation and inital start up of the appliance. The installer must respect the following instructions:

- Read and follow the instructions given in the manuals provided with the appliance.
- Carry out installation in compliance with the prevailing legislation and standards.
- Perform the initial start up and carry out any checks necessary.
- Explain the installation to the user.
- If a maintenance is necessary, warn the user of the obligation to check the appliance and maintain it in good working order.
- Give all the instruction manuals to the user.

1.3.3. User's liability

To guarantee optimum operation of the appliance, the user must respect the following instructions:

- Read and follow the instructions given in the manuals provided with the appliance.
- Call on qualified professionals to carry out installation and initial start up.
- Get your installer to explain your installation to you.
- Have the required checks and services done by a qualified professional.
- Keep the instruction manuals in good condition close to the appliance.

This appliance is not intended to be used by persons (including children) whose physcial, sensory or mental capacity is impaired or persons with no experience or knowledge, unless they have the benefit, through the intermediary of a person responsible for their safety, of supervision or prior instructions regarding use of the appliance. Care should be taken to ensure that children do not play with the appliance.

If the mains lead is damaged it must be replaced by the original manufacturer, the manufacturer's dealer or another suitably skilled person to prevent hazardous situations.

2 Safety instructions and recommendations

2.1 Safety instructions

Strictly follow the safety instructions given.

WARNING

- This equipment operates using electricity.
- Disconnect the equipment from the power supply before making electrical connections.
- Only qualified professionals are authorised to work on the appliance and the installation.
- Only the manufacturer is authorised to carry out repairs.

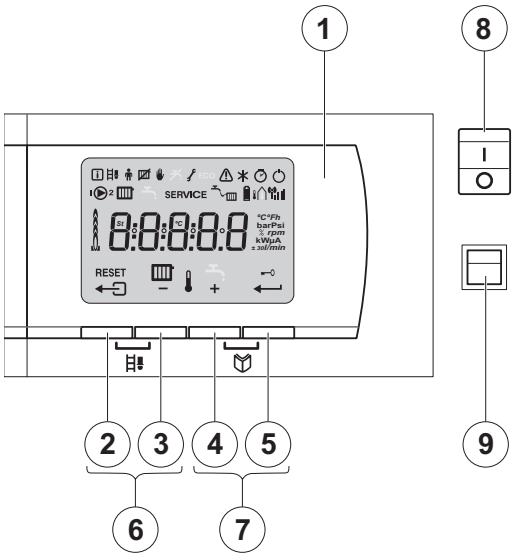
2.2 Recommendations

Only qualified professionals are authorised to work on the appliance and the installation.

- Store this document in the document wallet on the inside of the boiler casing.
- Keep the appliance accessible at all times.
- Never remove or cover labels and rating plates affixed to the appliance.

3 Technical description

3.1 Control panel



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For operation of the boiler **Gas 610 ECO PRO**:
Each module has its own instrument panel.

3.1.1. Functions of the keys

1	Display
2	[Escape] or **RESET** key
3	Heating temperature key or **[-]**
4	**[+]** key
5	[Enter] or cancel Key lock-out
6	[Chimney-sweeping] keys (press the **2** and **3** keys simultaneously)
7	[Menu] keys (press the **4** and **5** keys simultaneously)
8	On/Off switch
9	PC connection

The display has several positions and symbols and provides information on the operating condition of the boiler and any possible failures. A service message may also appear in the display. Numbers, dots and/or letters may be displayed. The symbols located above the function keys indicate their current function.

- The display content can be changed using parameter P4.
- The brightness of the display lighting can be changed using parameter P5.

Key lock-out is activated by setting parameter P4 to 3. If no key is pressed for 3 minutes, the display lighting switches off and only the current water pressure, the **RESET** key and the symbol are displayed (Water pressure: Only with the hydraulic pressure sensor connected). Press the key for about 2 seconds to reactivate the display and other keys. The symbol disappears from the display.

3.1.2. Meaning of the symbols on the display

	Information menu: Reading the various current values.		On/Off switch **(0/1)**: After 5 lock-outs, the boiler must be switched off/on again.
	Chimney-sweeping position: Forced full or part load for CO_2 measurement.		Circulation pump: The pump operates.
	User menu: Parameters at user level can be changed.		Central heating function: Access to central heating temperature parameter.
	Heating programme deactivated: The heating function is deactivated.		Locking the keys: Key lock-out is activated.
	Manual mode: Boiler is set to manual operation.	SERVICE	Yellow display with the symbols: + SERVICE + A (Maintenance message).
	Service menu: Parameters at installer level can be changed.		Water pressure: The water pressure is too low. (Only with the hydraulic pressure sensor connected)
	Defect: Boiler indicates a fault. This can be seen from the E code and red display.		Antifreeze protection: Boiler is running in frost protection mode.
	Burner level: Output level .		Hour counter menu: Readout of the operating hours, number of successful starts and hours on mains supply.
	Outside sensor: (Only if an outside temperature sensor is connected = Accessory).		Signal strength symbol: Signal strength of the wireless controller (if connected).
	Battery symbol: Status of battery of wireless controller (if connected).		

4 Installation

4.1 Control panel assembly

The instrument panel **HMI GAS 310/610 ECO PRO** is standard fitted in the **Gas 310/610 ECO PRO** boiler.

5 Commissioning

5.1 Switch on the instrument panel

For operation of the boiler **Gas 610 ECO PRO**:
The features and instructions described are for each boiler module.

The instrument panel **HMI GAS 310/610 ECO PRO** is ready for use, as soon as the power to the boiler is switched on.

1. Open the gas valve on the boiler.
2. Turn on the boiler using the on/off switch.
3. Set the controls (thermostats, control system) so that they request heat.
4. The start-up cycle begins and cannot be interrupted. During the start-up cycle, the display shows the following information:
   A short test where all segments of the display are visible.
   F□:XX: Software version
   P□:XX: Parameter version
   The version numbers are displayed alternately.

By pressing the ↵ key for a short time, the current operating status is shown on the display:

Heat demand	Heat demand stopped
1: Fan ON	5: Burner stop
2: Boiler is igniting	6: Post-circulation of the pump
3: Heating System	0: Standby

In STANDBY, the display normally shows the water pressure next to 0 (only when the hydraulic pressure sensor is connected) and the symbols and .

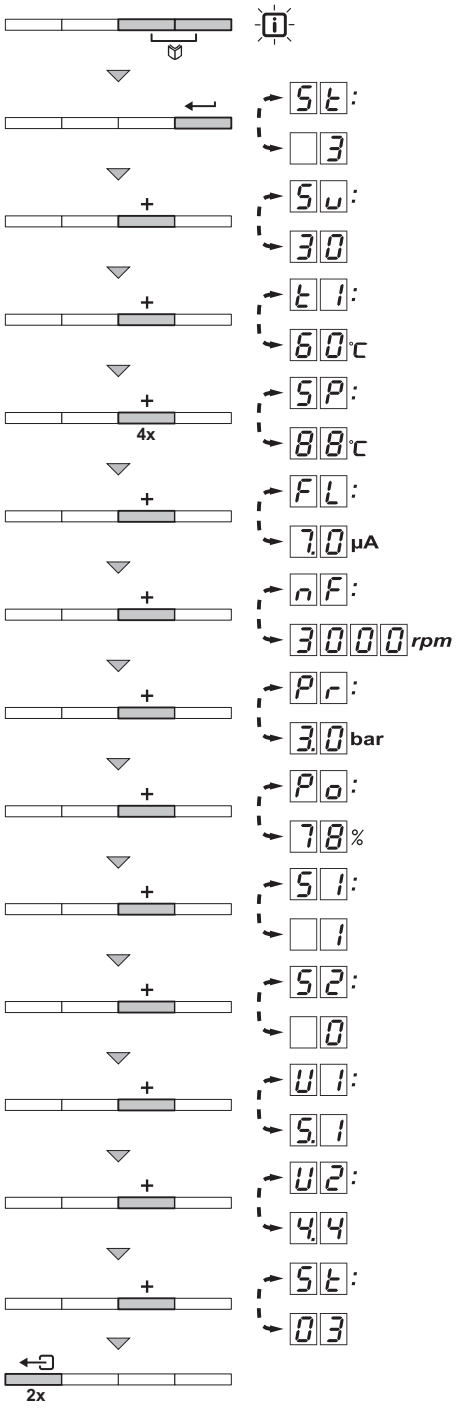
Error during the start-up procedure:

- No information is shown on the display:
  - Check the mains supply voltage
  - Check the main fuses
  - Check the connection of the mains lead to the connector in the instrument box (Check the fuse F2 = 10 AT)
  - Check the fuses on the control panel:
    (F1 = 2 AT)
- A fault is indicated on the display by the fault symbol and a flashing fault code.
  - The meaning of the error codes is given in the error table.
  - Press for 2 seconds on key **RESET** to restart the boiler.

5.2 Reading out measured values

For operation of the boiler **Gas 610 ECO PRO**:
The features and instructions described are for each boiler module.

5.2.1. Reading the various current values



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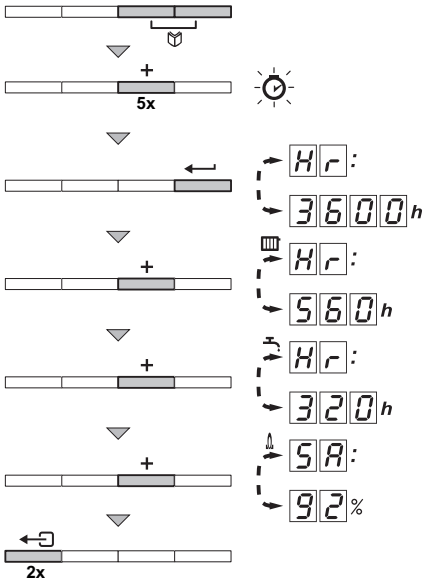
The following current values can be read off the information menu ⓘ:

- St = State.
- Su = Sub-status.
- t1 = Flow temperature (°C).
- t2 = Return temperature (°C).
- t4 = Outside temperature (°C)
  Only with an outside temperature sensor (Accessory).
- t6 = Exchanger temperature (°C).
- SP = Internal set point (°C).
- FL = Ionization current (µA).
- nF = Fan speed (rpm).
- Pr = Water pressure (bar (MPa)).
  Only with the hydraulic pressure sensor connected (Accessory).
- Po = Supplied relative heat output (%).
- S1 = Pressure switch minimum Gps (- = Not connected / 1 = Gas pressure OK / 2 = Gas pressure incorrect)
  Only with connected minimum gas pressure switch (Accessory)
- S2 = Gas valve leak proving system Vps (- = Not connected / 1 = No gas leak / 2 = Gas leak present)
  Only with connected gas leakage control (Accessory).
- U1 = Analogue input (V).
- U2 = Analogue output (V).

The current values can be read as follows:

1. Press the two ▽ keys simultaneously. The symbol ⓘ flashes.
2. Confirm using key ↵. St is displayed, alternating with the current status 3 (for example).
3. Press the **[+]** key. Su is displayed, alternating with the current sub-status 30 (for example).
4. Press the **[+]** key. t1 is displayed, alternating with the current flow temperature 60 °C (for example).
5. Press the **[+]** key successively to scroll down the various parameters
6. Press the **[+]** key. The readout cycle starts again with St.
7. Press the ↵ key 2 times to return to the current operating mode.

5.2.2. Readout from the hour counter and percentage of successful starts



1. Press the two keys simultaneously and then key **[+]** until the symbol flashes on the menu bar.
2. Press the key. Hr and the number of hours of boiler operation 3600 (for example) are displayed alternately.
3. Press the **[+]** key. The display shows . Hr is displayed, alternating with the number of operating hours in central heating operation 560 (for example).
4. Press the **[+]** key. The display shows . SA is displayed, alternating with the percentage of successful starts 92 % (for example).
5. Press the key 2 times to return to the current operating mode.

5.2.3. Status and sub-status

The information menu gives the following status and sub-status numbers:

State St		Sub-status Su	
0	Rest	0	Rest
1	Boiler start (Heat demand)	1	Anti-hunting
		2	Open hydraulic valve
		3	Start pump
		4	Wait for the correct temperatures for burner start
2	Burner start	10	Open external gas valve
		11	Fan ON
		12	Open flue gas damper
		13	Pre-ventilation
		14	Wait for release signal
		15	Burner on
		16	Gas valve leak proving system VPS
		17	Pre-ignition
		18	Main ignition
		19	Flame detection
		20	Intermediate ventilation

State St		Sub-status Su	
3	Burner for central heating operation	30	Temperature control
		31	Limited temperature control (ΔT safety)
		32	Output control
		33	Increase protection level 1 (Modulate down)
		34	Increase protection level 2 (Part load)
		35	Increase protection level 3 (Blockage)
		36	Modulate up for flame control
		37	Temperature stabilisation time
		38	Cold start
5	Burner stop	40	Burner off
		41	Post ventilation
		42	Fan OFF
		43	Close flue gas damper
		44	Stop fan
		45	Close external gas valve
6	Boiler stop (End of heat demand)	60	Pump post circulation
		61	Pump off
		62	Close hydraulic valve
		63	Start anti-hunting
8	Control stop	0	Wait for burner start
		1	Anti-hunting
9	Blocking	XX	Shutdown code XX

5.3 Changing the settings

The boiler control panel is set for the most common heating systems. With these settings, practically all heating systems operate correctly. The user or installer can optimise the parameters according to own preferences.

For the settings of the **Gas 610 ECO PRO** boiler:
The parameters and settings described are for each boiler module. Each parameter changing must therefore be done identical on each module.

5.3.1. Parameter descriptions

■ **Boiler type Gas 310 ECO PRO**

Parameter	Description	Adjustment range	Factory setting Gas 310 ECO PRO					
			285	355	430	500	575	650
P1	Flow temperature: T_{SET}	20 to 90 °C	80					
P2	Post-circulation of the pump	1 to 98 minutes 99 minutes = continuous	5					
P3	Boiler regulation	0 = Heating deactivated 1 = Heating activated	1					

Parameter	Description	Adjustment range	Factory setting					
			Gas 310 ECO PRO					
			285	355	430	500	575	650
P4	Display screen	0 = Simple 1 = Comprehensive 2 = Automatic switching to simple after 3 minutes 3 = Automatic switching to simple after 3 minutes; Key blocking is active	2					
P5	Brightness of display lighting	0 = Dimmed 1 = Bright	1					
P17	Maximum fan speed	G20 (Gas H) (x100 rpm)	52	55	35	38	43	41
P18	Minimum fan speed	G20 (Gas H) (x100 rpm)	14	15	9	10	11	10
P19	offset Minimum fan speed	Do not modify (x1 rpm)	0	50	50	50	0	50
P20	Start speed	Do not modify (x100 rpm)	25	25	13	14	14	14
P21	Maximum flow temperature of system	0 to 90 °C	90					
P22	Heat curve set point (Maximum outside temperature) Only with an outside temperature sensor (Accessory)	0 to 30 °C	20					
P23	Heat curve set point (Flow temperature) Only with an outside temperature sensor (Accessory)	0 to 90 °C	20					
P24	Heat curve set point (Minimum outside temperature) Only with an outside temperature sensor (Accessory)	-30 to 0 °C	-15					
P25	Antifreeze temperature Only with an outside temperature sensor (Accessory)	from - 30 to 0°C	- 10					
P26	Fault relay function **X4** (If connected)	0 = Operation signal 1 = Alarm signal	0					
P27	Fault relay function **X5** (If connected)	0 = Operation signal 1 = Alarm signal	1					
P28	Minimum water pressure Wps Only with the hydraulic pressure sensor connected (Accessory)	0 - 7 bar (MPa) (x 0.1bar (MPa)) 0 = Not connected	0					
P29	Minimum gas pressure check Gps (Accessory)	0 = Not connected 1 = Connected	0					
P30	Hydraulic valve running time HdV (If connected)	0 to 255 seconds	0					
P31	Flue gas damper running time FgV If connected	0 to 255 seconds	0					
P32	Release waiting time	0 to 255 seconds	0					

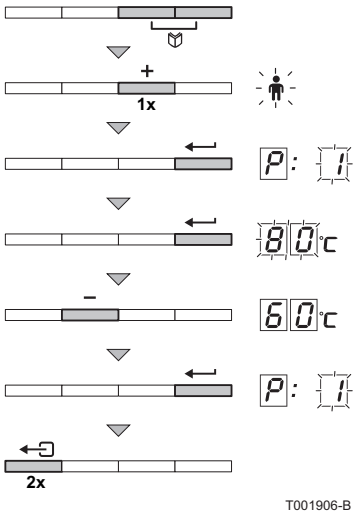
Parameter	Description	Adjustment range	Factory setting					
			Gas 310 ECO PRO					
			285	355	430	500	575	650
P33	Gas valve leak proving system VPS (Accessory)	0 = Not connected 1 = Connected	0					
P34	Mains detection phase	0 = Off 1 = On	1					
P35	Shutdown input function	1 = Shutdown without frost-protection 2 = Shutdown with frost protection 3 = Lock-out with frost protection (Pump only)	1					
P36	From Analogue output (0 - 10V) SCU-S05 control PCB	0 = 0-10 V Wilo control PCB 1 = 0-10 V Grundfos control PCB 2 = PWM pump 3 = Heat output feedback 4 = Temperature feedback	0					
P37	From Analogue input (0-10V) SCU-S05 control PCB	0 = OpenTherm regulator 1 = Analogue temperature-based control (°C) 2 = Analogue heat output-based control (%)	1					
P38	Average flow temperature factor	Do not modify	6					
P39	Display units	0 = °C / bar 1 = F / PSI	0					
P40	Maintenance message	0 = Service messages off 1 = Service messages on 2 = Customized service message	0					
P41	Service operating hours	(x 100) Do not modify	175					
P42	Service burning hours	(x 100) Do not modify	30					
P43	Setting the pump speed (Minimum pump speed for central heating operation)	2 - 10 (x 10%)	2					
P44	Setting the pump speed (Maximum pump speed for central heating operation)	6 - 10 (x 10%)	10					
P45	ΔT Modulate down	10 to 30 °C	25					
Ad	Detection of connected SCUs	0 = No detection 1 = Detection	0					
dF and dU	Factory setting	To restore the factory settings or when replacing the main PCB, enter the values dF and dU from the type plate in parameters dF and dU	X					
			Y					

■ Boiler type Gas 610 ECO PRO

Parameter	Description	Adjustment range	Factory setting					
			Gas 610 ECO PRO					
			570	710	860	1000	1150	1300
P1	Flow temperature: T_{SET}	20 to 90 °C	80					
P2	Post-circulation of the pump	1 to 98 minutes 99 minutes = continuous	5					
P3	Boiler regulation	0 = Heating deactivated 1 = Heating activated	1					
P4	Display screen	0 = Simple 1 = Comprehensive 2 = Automatic switching to simple after 3 minutes 3 = Automatic switching to simple after 3 minutes; Key blocking is active	2					
P5	Brightness of display lighting	0 = Dimmed 1 = Bright	1					
P17	Maximum fan speed	G20 (Gas H) (x100 rpm)	52	55	35	38	43	41
P18	Minimum fan speed	G20 (Gas H) (x100 rpm)	19	18	13	12	14	13
P19	offset Minimum fan speed	Do not modify (x1 rpm)	0	50	0	50	0	50
P20	Start speed	Do not modify (x100 rpm)	25	25	14	14	15	16
P21	Maximum flow temperature of system	0 to 90 °C	90					
P22	Heat curve set point (Maximum outside temperature) Only with an outside temperature sensor (Accessory)	0 to 30 °C	20					
P23	Heat curve set point (Flow temperature) Only with an outside temperature sensor (Accessory)	0 to 90 °C	20					
P24	Heat curve set point (Minimum outside temperature) Only with an outside temperature sensor (Accessory)	-30 to 0 °C	-15					
P25	Antifreeze temperature Only with an outside temperature sensor (Accessory)	from - 30 to 0°C	- 10					
P26	Fault relay function **X4** (If connected)	0 = Operation signal 1 = Alarm signal	0					
P27	Fault relay function **X5** (If connected)	0 = Operation signal 1 = Alarm signal	1					
P28	Minimum water pressure Wps Only with the hydraulic pressure sensor connected (Accessory)	0 - 7 bar (MPa) (x 0.1bar (MPa)) 0 = Not connected	0					

Parameter	Description	Adjustment range	Factory setting					
			Gas 610 ECO PRO					
			570	710	860	1000	1150	1300
P29	Minimum gas pressure check Gps (Accessory)	0 = Not connected 1 = Connected	0					
P30	Hydraulic valve running time HdV (If connected)	0 to 255 seconds	0					
P31	Flue gas damper running time FgV If connected	0 to 255 seconds	0					
P32	Release waiting time	0 to 255 seconds	0					
P33	Gas valve leak proving system VPS (Accessory)	0 = Not connected 1 = Connected	0					
P34	Mains detection phase	0 = Off 1 = On	1					
P35	Shutdown input function	1 = Shutdown without frost-protection 2 = Shutdown with frost protection 3 = Lock-out with frost protection (Pump only)	1					
P36	From Analogue output (0 - 10V) SCU-S05 control PCB	0 = 0-10 V Wilo control PCB 1 = 0-10 V Grundfos control PCB 2 = PWM pump 3 = Heat output feedback 4 = Temperature feedback	0					
P37	From Analogue input (0-10V) SCU-S05 control PCB	0 = OpenTherm regulator 1 = Analogue temperature-based control (°C) 2 = Analogue heat output-based control (%)	1					
P38	Average flow temperature factor	Do not modify	6					
P39	Display units	0 = °C / bar 1 = F / PSI	0					
P40	Maintenance message	0 = Service messages off 1 = Service messages on 2 = Customized service message	0					
P41	Service operating hours	(x 100) Do not modify	175					
P42	Service burning hours	(x 100) Do not modify	30					
P43	Setting the pump speed (Minimum pump speed for central heating operation)	2 - 10 (x 10%)	2					
P44	Setting the pump speed (Maximum pump speed for central heating operation)	6 - 10 (x 10%)	10					
P45	ΔT Modulate down	10 to 30 °C	25					
Ad	Detection of connected SCUs	0 = No detection 1 = Detection	0					
dF and dU	Factory setting	To restore the factory settings or when replacing the main PCB, enter the values dF and dU from the type plate in parameters dF and dU	X					
			Y					

5.3.2. Modification of the user-level parameters



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Parameters P1 to P5 can be changed by the user.

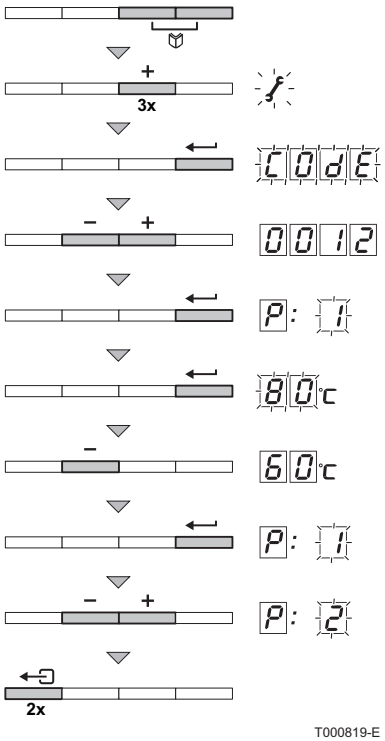
CAUTION

Modification of the factory settings may be detrimental to the functioning of the appliance.

1. Press the two keys simultaneously and then key **[+]** until the symbol flashes on the menu bar.
2. Select the users menu using the key ↵. P:1 is displayed with 1 flashing.
3. Press the ↵ key a second time. The value 80 °C appears and flashes (for example).
4. Change the value by pressing the **[-]** or **[+]** key. In this example using key **[-]** to 60 °C.
5. Confirm the value with the ↵ key. P:1 is displayed with 1 flashing.
6. Press the key 2 times to return to the current operating mode.

The parameters P2 to P5 are changed in the same way as P1. After step 2, use the **[+]** key to move to the required parameter.

5.3.3. Modification of the installer-level parameters



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Parameters P17 to dF must only be modified by a qualified professional. To prevent unwanted settings, some parameter settings can only be changed after the special access code 0012 is entered.

CAUTION

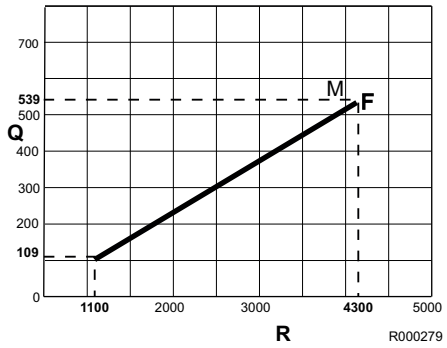
Modification of the factory settings may be detrimental to the functioning of the appliance.

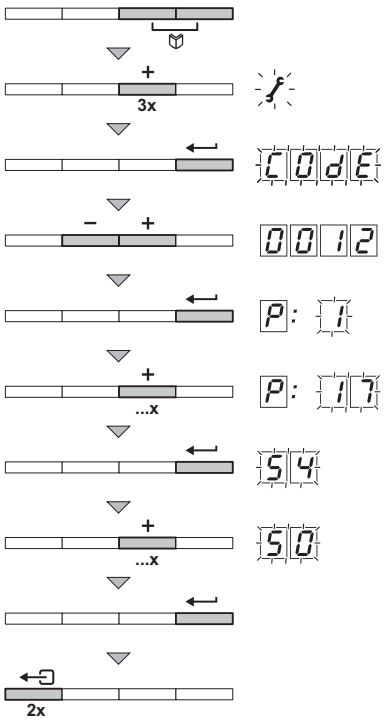
1. Press the two keys simultaneously and then key **[+]** until the symbol flashes on the menu bar.
2. Select the fitter menu using the ↵ key. CodE appears on the display.
3. Use keys **[-]** or **[+]** to input the installer code 0012.
4. Confirm using key ↵. P:1 is displayed with 1 flashing.
5. Press the ↵ key a second time. The value 80 °C appears and flashes (for example).
6. Change the value by pressing the **[-]** or **[+]** key. In this example using key **[-]** to 60 °C.
7. Confirm the value with the ↵ key: P:1 is displayed with 1 flashing.

8. If necessary, set other parameters by selecting them using the **[-]** or **[+]** keys.
9. Press the ⏎ key 2 times to return to the current operating mode.

The boiler also returns to operating status if no keys are pressed for 3 minutes.

5.3.4. Setting the maximum heat input for central heating operation





Type Gas 310- ECO PRO 575

M	Maximum heat input (natural gas)
F	Factory setting
Q	Power input (kW)
R	Fan rotation speed (rpm)

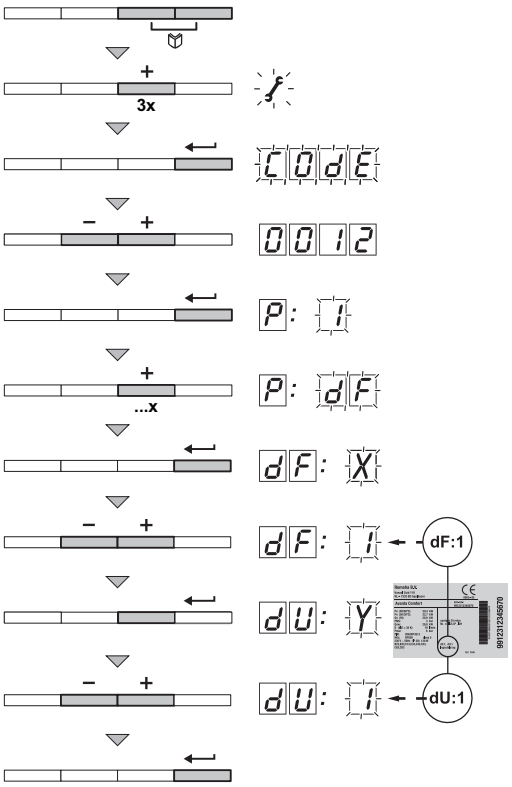
The speed can be changed using parameter P 17. A linear relationship exists between the speed and the input: See graph. A graph for the other boilers can be produced in the same way.

1. Press the two keys ⌂ simultaneously and then key **[+]** until the symbol ƒ flashes on the menu bar.
2. Select the installers menu using the key ⏎. CodE appears on the display.
3. Use keys **[-]** or **[+]** to input the installer code 0012.
4. Confirm using key ⏎. P:1 is displayed with 1 flashing.
5. Press the **[+]** key to go to parameter P:17.
6. Confirm using key ⏎.
7. Press the **[+]** button to reduce the speed from 54 to 50, for example.
8. Confirm the value with the ⏎ key.
9. Press the ⏎ key 2 times to return to the current operating mode.

5.3.5. Return to the factory settings

CAUTION

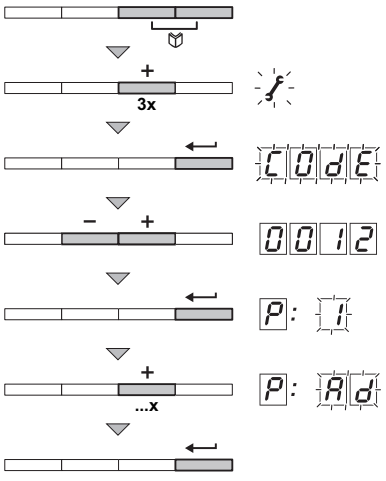
By restoring the factory settings, customized settings can also be erased. So first write down all the customized parameters (eg settings for attached accessories such as a flue gas valve or gas leak control). Adjust these specific settings again after the factory settings have been restored.



T000820-H

1. Press the two keys simultaneously and then key **[+]** until the symbol flashes on the menu bar.
2. Select the installers menu using the key ↵. CodE appears on the display.
3. Use keys **[-]** or **[+]** to input the installer code 0012.
4. Confirm using key ↵. P:1 is displayed with 1 flashing.
5. Press the **[+]** key several times. P:dF is displayed with dF flashing.
6. Press the ↵ key. dF:X is displayed with X flashing. This is the current value of X for dF. Check this against the value of X on the type plate.
7. Enter the value of X shown on the type plate using the **[-]** or **[+]** key.
8. Confirm the value with the ↵ key, dF:Y is displayed with Y flashing. This is the current value of Y for dU. Check this against the value of Y on the type plate.
9. Enter the value of Y shown on the type plate using the **[-]** or **[+]** key.
10. Confirm the value with the ↵ key. The factory settings are reset.
11. The display returns to the current operating mode.

5.3.6. Carrying out an auto-detect

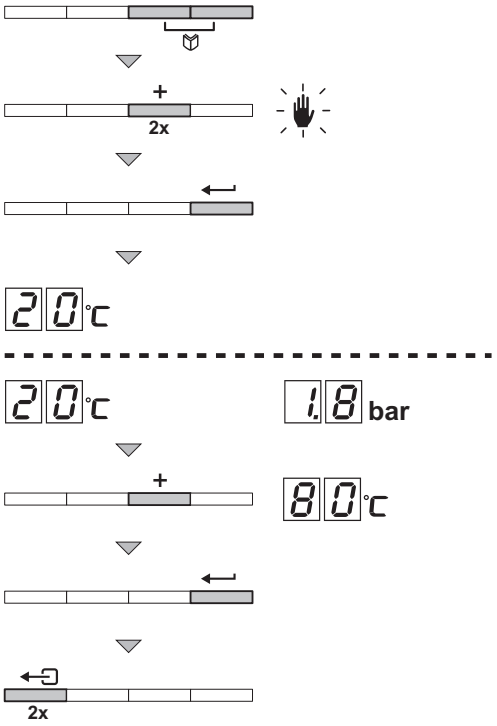


T000445-B

After removing a control PCB, an auto-detect must be carried out. To do this, proceed as follows:

1. Press the two keys simultaneously and then key **[+]** until the symbol flashes on the menu bar.
2. Select the installers menu using the key ↵. CodE appears on the display.
3. Use keys **[-]** or **[+]** to input the installer code 0012.
4. Confirm using key ↵. P:1 is displayed with 1 flashing.
5. Press the **[+]** key several times. P:Ad is displayed with Ad flashing.
6. Confirm using key ↵. Auto-detect is carried out.
7. The display returns to the current operating mode.

5.3.7. Setting the manual mode



In some cases it may be necessary to switch the boiler to manual operation, For example, if the controller has not yet been connected. The boiler can be switched to automatic or manual operation under the symbol ✋. To do this, proceed as follows:

1. Press the two keys simultaneously and then key **[+]** until the symbol ✋ flashes on the menu bar.
2. Press the ↵ key:
   or
   The value of the minimum flow temperature.
   or
   The value of the minimum flow temperature and The current water pressure (Only with the hydraulic pressure sensor connected).
3. Press the **[+]** key to increase the flow temperture manually.
4. Confirm the value with the ↵ key. The boiler is now set to manual operation.
5. Press the ⏎ key 2 times to return to the current operating mode.

6 Troubleshooting

6.1 Shutdowns and lock-outs

For operation of the boiler **Gas 610 ECO PRO**:
The features and instructions described are for each boiler module.

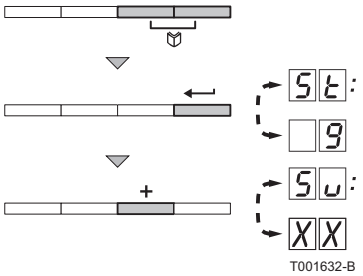
6.1.1. General

The boiler is fitted with an electronic regulation and control unit. The heart of the control system is a microprocessor, the **Comfort Master©**, which controls the boiler and also protects the boiler. When a failure is signalled, the boiler stops or becomes locked.

6.1.2. Blocking

A (temporary) blocking mode is a boiler operating function caused by an unusual situation. In this case, the display gives a code of blocking (code St:9). The boiler control will try to re-start several times. The boiler will start up again after the blocking conditions have been eliminated. The shutdown codes can be read out as follows:

1. Press the two keys simultaneously.
2. Confirm by pressing key ↵. St is displayed, alternating with the shutdown code 9.
3. Press the **[+]** key. Su appears on the display.



The boiler starts up again automatically when the reason for the blocking has been removed.

Shutdown code	Description	Probable causes	Checking / solution
Su:0	Parameter error	▸ Parameter error on the PSU PCB	▸ Reset dF and dU ▸ Restore parameters with Recom
Su:1	Maximum flow temperature exceeded	▸ Non-existent or insufficient circulation	▸ Check the circulation (direction, pump, valves) ▸ Reasons for the heat demand
Su:3	Maximum heat exchanger temperature increase has been exceeded	▸ Non-existent or insufficient circulation ▸ Sensor error	▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check the cleanliness of the heat exchanger ▸ Check that the sensors are operating correctly ▸ Check that the sensor has been correctly fitted

(1) These lock-outs are not stored in the fault memory

Shutdown code	Description	Probable causes	Checking / solution
SU:4	The maximum temperature increase speed tolerated in the exchanger has been exceeded	▸ Non-existent or insufficient circulation	▸ Check the circulation (direction, pump, valves) ▸ Reasons for the heat demand
SU:5 SU:6	Maximum difference between the flow and return temperature exceeded	▸ Non-existent or insufficient circulation ▸ Sensor error	▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check the cleanliness of the heat exchanger ▸ Check that the sensors are operating correctly ▸ Check that the sensor has been correctly fitted
SU:8	No release signal	▸ External cause ▸ Parameter error ▸ Bad connection	▸ Suppress the external cause ▸ Check the parameters ▸ Check the wiring
SU:9	Phase and neutral of mains supply mixed up	▸ Mains supply incorrectly wired ▸ Floating or 2 phase network	▸ Invert phase and neutral ▸ Set parameter P34 to 0
SU:10	Shutdown input is open	▸ External cause ▸ Parameter error ▸ Bad connection	▸ Suppress the external cause ▸ Check the parameters ▸ Check the wiring
SU:11	Shutdown input active or frost protection active	▸ External cause ▸ Parameter error ▸ Bad connection	▸ Suppress the external cause ▸ Check the parameters ▸ Check the wiring
SU:13	Communication error with the SCU PCB	▸ Bad connection with BUS ▸ SCU PCB not installed in the boiler	▸ Check the wiring ▸ Carry out automatic detection
SU:14	The water pressure is too low	▸ The water pressure is too low ▸ Incorrect adjustment of water pressure parameter 28 ▸ Water leakage	Check: ▸ Water pressure in the installation ▸ Setting of hydraulic pressure sensor ▸ Setting parameter 28
SU:15	Gas pressure too low	▸ Non-existent or insufficient circulation ▸ Incorrect setting of the Gps gas pressure switch on the SCU PCB	▸ Check that the gas valve is fully opened ▸ Check the supply pressure ▸ Check whether the Gps gas pressure control system has been correctly fitted ▸ Replace the Gps gas pressure control system if need be
SU:16 (1)	Configuration fault or SU PCB not recognised	▸ Wrong SU PCB for this boiler	▸ Replace the SU PCB
SU:17 (1)	Configuration fault or default parameter table incorrect	▸ Parameter error on the PCU PCB	▸ Replace the PCU PCB
SU:18 (1)	Configuration fault or PSU PCB not recognised	▸ Wrong PCU PCB for this boiler	▸ Replace the PCU PCB
SU:19 (1)	Configuration fault or parameters dF-dU unknown	▸ Parameter error	▸ Reset dF and dU
SU:20 (1)	Configuration procedure active	▸ Active for a short time after switching on the boiler	▸ No action required
SU:21	Communication error with the SU PCB	▸ Bad connection	▸ Check whether the SU PCB has been correctly fitted in the connector on PCU PCB

(1) These lock-outs are not stored in the fault memory

Shutdown code	Description	Probable causes	Checking / solution
S.:22	No flame during operation	▸ No ionization current	▸ Purge the gas supply to remove air ▸ Check that the gas valve is fully opened ▸ Check the supply pressure ▸ Check the operation and setting of the gas valve unit ▸ Check that the air inlet and flue gas discharge flues are not blocked ▸ Check that there is no recirculation of flue gases
S.:24	Gas leakage control fault	▸ Bad connection ▸ Gas valve unit defect ▸ Gas leakage control VPS faulty	▸ Check the wiring ▸ Replace the gas valve unit ▸ Replace gas leakage control VPS
S.:25	Internal error on the SU PCB		▸ Replace the SU PCB
(1) These lock-outs are not stored in the fault memory			

6.1.3. Lock out

If the blocking conditions still exist after several start up attempts, the boiler will switch into locking mode (fault). The display shows :

In a red flashing display:

- The symbol ⚠
- The symbol RESET
- The fault code (for example E:01)

- Press the RESET key for 2 seconds. If the error code continues to display, search for the cause in the error table and apply the solution.

The error code is important for rapid and correct tracking of the type of problem and for any technical assistance from **Remeha**.

Error code	Description	Probable causes	Checking / solution
E:00	Storage unit PSU parameter not found	▸ Bad connection	▸ Check the wiring
E:01	The safety parameters are incorrect	▸ Bad connection ▸ PSU defective	▸ Check the wiring ▸ Replace PSU
E:02	Flow temperature sensor short circuited	▸ Bad connection ▸ Sensor not or badly connected ▸ Sensor fault	▸ Check the wiring ▸ Check that the sensors are operating correctly ▸ Check that the sensor has been correctly fitted ▸ Replace the sensor if necessary
E:03	Flow temperature sensor open circuit	▸ Bad connection ▸ Sensor not or badly connected ▸ Sensor fault	▸ Check the wiring ▸ Check that the sensors are operating correctly ▸ Check that the sensor has been correctly fitted ▸ Replace the sensor if necessary

Error code	Description	Probable causes	Checking / solution
E:04 E:05	▸ Temperature of heat exchanger too low ▸ Exchanger temperature too high	▸ Bad connection ▸ No circulation ▸ Sensor not or badly connected ▸ Sensor fault	▸ Check the wiring ▸ Vent the air in the heating system ▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check the cleanliness of the heat exchanger ▸ Check that the sensor has been correctly fitted ▸ Check that the sensors are operating correctly ▸ Replace the sensor if necessary
E:06	Return temperature sensor short circuited	▸ Bad connection ▸ Sensor not or badly connected ▸ Sensor fault	▸ Check the wiring ▸ Check that the sensor has been correctly fitted ▸ Check that the sensors are operating correctly ▸ Replace the sensor if necessary
E:07	Return temperature sensor open circuit	▸ Bad connection ▸ Sensor not or badly connected ▸ Sensor fault	▸ Check the wiring ▸ Check that the sensor has been correctly fitted ▸ Check that the sensors are operating correctly ▸ Replace the sensor if necessary
E:08 E:09	▸ Return temperature too low ▸ Return temperature too high	▸ Bad connection ▸ No circulation ▸ Sensor not or badly connected ▸ Sensor fault	▸ Check the wiring ▸ Check the cleanliness of the heat exchanger ▸ Vent the air in the heating system ▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check that the sensors are operating correctly ▸ Check that the sensor has been correctly fitted
E:10 E:11	Difference between the flow and return temperatures too great	▸ No circulation ▸ Sensor not or badly connected ▸ Sensor fault	▸ Vent the air in the heating system ▸ Check the water pressure ▸ Check that the heating pump is operating correctly ▸ Check the circulation (direction, pump, valves) ▸ Check the cleanliness of the heat exchanger ▸ Check that the sensor has been correctly fitted ▸ Check that the sensors are operating correctly ▸ Replace the sensor if necessary
E:12	▸ Air differential pressure switch has been triggered ▸ Temperature of heat exchanger above normal range (high-limit thermostat STB)	▸ Air inlet or flue gas discharge blocked ▸ Bad connection ▸ No circulation ▸ Sensor not or badly connected ▸ Sensor fault	▸ Check that the air inlet and flue gas discharge flues are not blocked ▸ Check the wiring ▸ Check the water pressure ▸ Check that the heating pump is operating correctly ▸ Check the circulation (direction, pump, valves) ▸ Check the cleanliness of the heat exchanger ▸ Check that the sensor has been correctly fitted ▸ Check that the sensors are operating correctly ▸ Replace the sensor if necessary

Error code	Description	Probable causes	Checking / solution
E:14	5 burner start-up failures	▸ No ignition	▸ Check cabling of ignition transformer ▸ Check the ionization/ignition electrode ▸ Check breakdown to earth ▸ Check the earthing ▸ Defective control SU PCB
		▸ Ignition arc, but no flame formation	▸ Check that the air inlet and flue gas discharge flues are not blocked ▸ Check that the gas valve is fully opened ▸ Check the supply pressure ▸ Purge the gas supply to remove air ▸ Check the operation and setting of the gas valve unit ▸ Check the condition of the burner set ▸ Check the wiring on the gas valve unit ▸ Defective control SU PCB
		▸ Presence of the flame but insufficient ionization (<3 µA)	▸ Check that the gas valve is fully opened ▸ Check the supply pressure ▸ Check the wiring on the ionization/ignition electrode ▸ Check the earthing ▸ Check the ionization/ignition electrode ▸ Check the operation and setting of the gas valve unit ▸ Check the condition of the burner set
E:15	5 failed gas leakage controls	▸ Gas pressure non-existent or too low ▸ Wiring fault ▸ Incorrect adjustment of the VPS switch ▸ Pressure switch VPS is not or badly fitted ▸ Defective VPS pressure switch ▸ Gas valve defect	▸ Check that the gas valve is fully opened ▸ Check the supply pressure ▸ Check the wiring ▸ Check whether the VPS gas pressure control system has been correctly fitted ▸ Check that the VPS switch has been adjusted correctly ▸ Replace the VPS gas pressure control system if need be ▸ Check the gas valve and replace if necessary
E:16	False flame signal	▸ Ionization current present even though there is no flame ▸ The burner remains very hot: CO_2 too high ▸ Ignition transformer defective ▸ Gas valve defect	▸ Check the ionization/ignition electrode ▸ Set the CO_2 ▸ Replace the ignition transformer if necessary ▸ Check the gas valve and replace if necessary
E:17	Problem on the gas valve SU PCB	▸ Bad connection ▸ Defective SU PCB	▸ Check the wiring ▸ Inspect the SU PCB and replace it if need be
E:34	Fan fault	▸ Bad connection ▸ Fan defective	▸ Check the wiring ▸ Check for adequate draw on the chimney connection ▸ Replace the fan if need be
E:35	Flow and return reversed	▸ Water circulation direction reversed ▸ Bad connection ▸ Sensor not or badly connected ▸ Sensor fault	▸ Check the circulation (direction, pump, valves) ▸ Check that the sensor has been correctly fitted ▸ Check that the sensors are operating correctly ▸ Replace the sensor if necessary

Error code	Description	Probable causes	Checking / solution
E:36	5x Flame loss	▸ No or insufficient ionization current	▸ Purge the gas supply to remove air ▸ Check that the gas valve is fully opened ▸ Check the supply pressure ▸ Check the operation and setting of the gas valve unit ▸ Check that the air inlet and flue gas discharge flues are not blocked ▸ Check that there is no recirculation of flue gases
E:37	Communication error with the SU PCB	▸ Bad connection	▸ Check whether the SU PCB has been correctly fitted in the connector on PCU PCB
E:38	Communication error with the SCU PCB	▸ Bad connection ▸ Defective SCU PCB	▸ Check the wiring ▸ Replace SCU PCB
E:39	Shutdown input in locked-out mode	▸ Bad connection ▸ External cause ▸ Parameter incorrectly set	▸ Check the wiring ▸ Suppress the external cause ▸ Check the parameters

6.2 Error memory

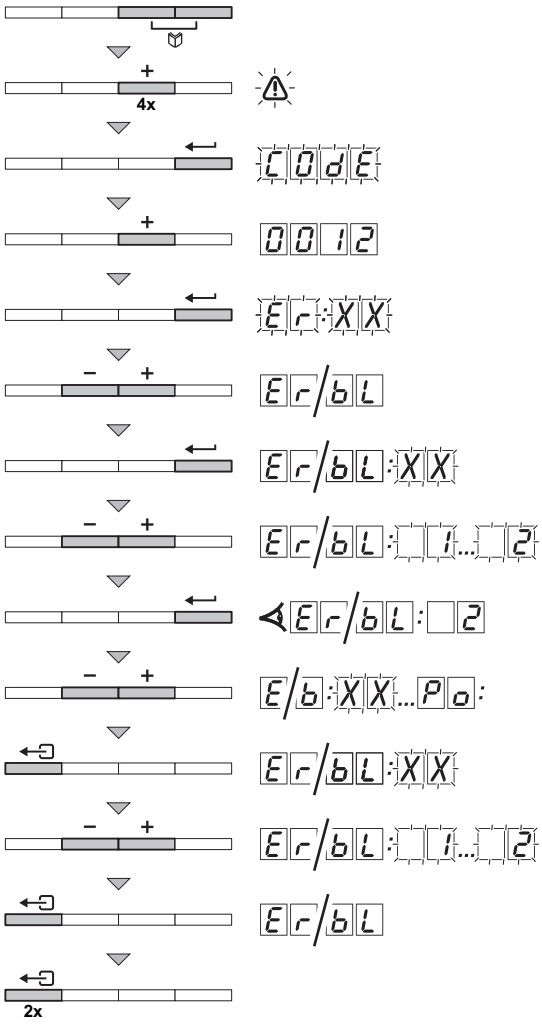
The boiler control is equipped with an error memory. The last 16 errors encountered are recorded in this memory.

In addition to the error codes, the following data are also saved:

- Number of times that the error occured: (n□:XX).
- Boiler operating mode selected (St:XX).
- The flow temperature (t1:XX) and the return temperature (t2:XX) when the error occured.

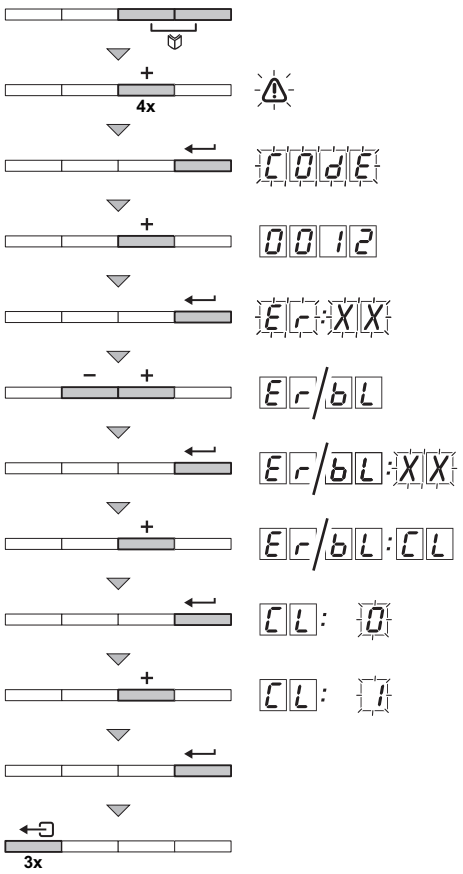
To view the error memory, you first have to enter access code 0012.

6.2.1. Error readout memorised



1. Press the two keys simultaneously and then key **[+]** until the symbol flashes on the menu bar.
2. Select the installers menu using the key ⟵. CodE appears on the display.
3. Use keys **[-]** or **[+]** to input the installer code 0012.
4. Press the ⟵ key. Er:XX appears on the display.
5. The fault list or shutdown list can be displayed by pressing the **[-]** or **[+]** key.
6. Confirm using key ⟵. Er:XX is displayed with XX flashing = Last error which occured, For example 2.
7. Use the **[-]** or **[+]** key to scroll through the faults or shutdowns.
8. Press the ⟵ key to display the details of the faults or shutdowns.
9. Press the **[-]** or **[+]** key to view the following information:
   - n:1 = Number of times that the error occured.
   - Hr = The number of operating hours.
   - St = State.
   - Su = Sub-status.
   - t1 = Flow temperature (°C).
   - t2 = Return temperature (°C).
   - t4 = Outside temperature (°C) (Only with an outside temperature sensor).
   - t6 = Exchanger temperature (°C).
   - SP = Internal set point (°C).
   - FL = Ionization current (µA).
   - nF = Fan speed in rpm.
   - Pr = Water pressure (bar (MPa)). (Only with the hydraulic pressure sensor connected)
   - Po = Supplied relative heat output (%).
10. Press the ⟵ key to interrupt the display cycle. Er:XX is displayed with XX flashing = Last error which occured.
11. Use the **[-]** or **[+]** key to scroll through the faults or shutdowns.
12. Press the ⟵ key to show the fault list or shutdown list.
13. Press 2 times on the key ⟵ to exit the error memory.

6.2.2. Deletion of the error display



1. Press the two keys simultaneously and then key **[+]** until the symbol flashes on the menu bar.
2. Select the installers menu using the key ↵. CodE appears on the display.
3. Use keys **[-]** or **[+]** to input the installer code 0012.
4. Press the ↵ key. Er:XX appears on the display.
5. The fault list or shutdown list can be displayed by pressing the **[-]** or **[+]** key.
6. Confirm using key ↵. Er:XX is displayed with XX flashing.
7. Press the **[+]** key several times until Er:CL is displayed on the screen.
8. Press the ↵ key. CL:0 is displayed with 0 flashing.
9. Press key **[+]** to modify the value to 1.
10. Press the ↵ key to delete the errors from the error memory.
11. Press 3 times on the key to exit the error memory.

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